

ward of the Yucatan Channel; however, no definite cyclonic development was indicated.

*Fog.*—July was foggier than normal over most northern portions of the North Atlantic. As a rule there was more fog than during the preceding month, and this was notably the case to northward of the 45th parallel between the 20th and 40th meridians. A decrease in foginess from June to July is indicated for the area just to eastward of Chesapeake and Delaware Bays and also for the section

a short distance to northwestward of the westernmost Azores.

The square of most frequent fog was in the Cape Cod-Maine-Nova Scotia region, where 23 days gave reports of fog. Next was a square at the southern tip of the Grand Banks, 40° to 45° N., 45° to 50° W., with 22 days. In that part of the Atlantic to eastward of the 40th meridian the foggiest square (45° to 50° N. and 25° to 30° W.) had 11 days. It was noteworthy that between the 40th meridian and Europe fog was seldom met after the 18th.

## OCEAN GALES AND STORMS, JULY 1938

Vessel	Voyage		Position at time of lowest barometer		Gale began July—	Time of lowest barometer July—	Gale ended July—	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Caledonia, Br. S. S.	Glasgow	New York	55 13 N.	19 03 W.	3	Mdt, 3...	4	29.60	W	W, 7	NW	NW, 8	W-WNW.
Black Hawk, Am. S. S.	Rotterdam	do	49 49 N.	12 16 W.	4	3p, 4...	5	29.86	WNW	WNW, 6	WNW	WNW, 9	W-WNW.
Bilderdijk, Du. S. S.	do	do	49 41 N.	9 56 W.	4	8p, 4...	5	29.77	W	W, 7	WNW	WNW, 8	W-WNW.
Hermes, Du. S. S.	Amsterdam	San Juan	43 43 N.	20 04 W.	5	2a, 6...	6	29.77	WSW	WNW	NNW	NW, 8	WNW-WNW.
Nemaha, Am. S. S.	Rotterdam	New Orleans	42 20 N.	18 00 W.	6	6a, 6...	6	29.90	NW	NW, 10	NW	NW, 10	None.
City of Omaha, Am. S. S.	London	Tampico	45 06 N.	15 30 W.	6	11a, 6...	6	29.65	NNW	WSW, 4	NNW	NNW, 8	SW-W.
Camito, Br. S. S.	Avonmouth	Jamaica	46 18 N.	16 18 W.	6	11a, 6...	6	29.64	N	W, 4	N	N, 8	SSW-WNW.
Marguerite Finaly, Fr. M. S.	Hamburg	Aruba	48 30 N.	9 42 W.	7	2a, 7...	8	29.52	N	N, 8	WNW	NNW, 8	N-NW.
Statendam, Du. S. S.	Rotterdam	New York	50 05 N.	8 58 W.	7	Noon, 7...	8	29.29	S	NNW, 9	NW	NNW, 9	S-WNW.
American Shipper, Am. S. S.	Belfast	Boston	54 55 N.	17 00 W.	10	8p, 10...	11	29.72	W	W, 8	W	W, 8	None.
Scanpenn, Am. S. S.	Copenhagen	Wilmington	56 02 N.	26 30 W.	12	6a, 13...	14	29.39	WSW	W, 9	NW	WNW, 10	WSW-WNW.
Svanhild, Dan. S. S.	Aalborg	New York	58 30 N.	15 30 W.	13	11p, 13...	14	29.17	S	SW, 7	WNW	WNW, 8	S-WNW.
Castilla, Hond. S. S.	Philadelphia	Barrios	20 06 N.	86 00 W.	31	6a, 31...	31	29.94	E, 4	E, 4	SE	SE, 6	SE-E.
Cefalu, Hond. S. S.	Havana	Cristobal	20 12 N.	84 06 W.	30	7a, 31...	31	29.97	ESE, 5	ESE, 5		SE, 6	
NORTH PACIFIC OCEAN													
Hikawa Maru, Jap. M. S.	Vancouver, B. C.	Yokohama	43 50 N.	152 10 E.	1	10a, 1...	1	29.21	SW	SW, 8	W	WSW, 8	SE-SW-WNW.
President Jefferson, Am. S. S.	Seattle	do	47 15 N.	163 45 E.	1	4a, 2...	2	29.61	SE	SSE, 9	SSE	SSE, 9	SE-S.
Hoegh Hood, Nor. M. S.	Estero Bay	Kobe	35 00 N.	158 12 E.	8		8		S		S	S, 8	
Northland, U. S. C. G.			65 42 N.	169 00 W.	9	1p, 10...	10	29.67	N	N, 5	N	N, 8	None.
Columbian, Am. S. S.	Los Angeles	Balboa	13 06 N.	93 18 W.	18	5p, 17...	18	29.83	NE	SW, 1	NE	NE, 10	
Kaijo Maru, Jap. M. S.	do	Yokohama	37 42 N.	144 30 E.	25	5a, 25...	25	29.72	ESE	SE, 8	SE	SE, 8	ESE-SE.
San Marcos, Am. S. S.	San Diego	Balboa	13 03 N.	93 17 W.	28	2a, 28...	28	29.90	E	E, 2	E	E, 9	

<sup>1</sup> Barometer uncorrected.

## NORTH PACIFIC OCEAN, JULY 1938

By WILLIS E. HURD

*Atmospheric pressure.*—Stable anticyclonic pressure conditions existed over middle latitudes on the eastern two-thirds of the North Pacific Ocean during the greater part of July 1938. Even in higher latitudes, extending well into the Bering Sea, the average barometer was unusually high, as may be observed in the accompanying table, and the Aleutian Low, for the first time since August 1937, had become practically nonexistent.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, July 1938, at selected stations

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Point Barrow	29.80	-0.12	30.04	28	29.56	10
Dutch Harbor	29.99	+0.05	30.34	30, 31	29.56	7
St. Paul	29.97	+0.13	30.26	22	29.44	9
Kodiak	30.00	+0.06	30.34	22	29.42	11
Juneau	30.07	+0.02	30.45	23	29.72	9
Tatoosh Island	30.09	+0.04	30.29	18	29.79	25
San Francisco	29.97	+0.02	30.14	4	29.81	23
Mazatlan	29.90	+0.04	29.98	1	29.78	7
Honolulu	30.02	.00	30.11	19	29.94	31
Midway Island	30.14	+0.03	30.27	11	30.00	1
Guam	29.81	-0.03	29.94	3	29.71	14, 15
Manila	29.78	+0.04	29.89	7	29.71	4, 27
Hong Kong	29.70	+0.05	29.82	7	29.52	4
Naha	29.79	+0.07	30.00	6	29.53	30
Tititima	29.85	.00	30.09	4	29.56	13
Petropavlovsk	29.88	.....	30.18	11	29.53	21

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

While low pressure conditions prevailed over western Mexico and the adjoining west coast, and in the Far East, average pressures in these regions, except at Guam, were normal to slightly above.

*Extratropical cyclones and gales.*—While several low pressure areas crossed northern waters of the North Pacific during July 1938, none was very active, and no gales were reported for the entire region east of the 170th meridian of east longitude, except in the Tropics and in Bering Strait.

In middle and higher east longitudes gales were few in number and occurred within the region 35° to 48° N., 144° to 165° E. These gales, of force 8 to 9, were experienced on the 1st, 2d, 8th, and 25th. That of the 1st, of force 8, barometer 29.21, to the immediate southward of the Kuril Islands, was in connection with the deepest cyclone of record during the month.

*Tropical cyclones and gales.*—On the 18th and 28th of July strong to whole gales were reported south of the Gulf of Tehuantepec, both near 13° N., 93° W. The former, of force 10 from the northeast, lowest barometer 29.83, was encountered by the American steamer *Columbian*; the latter, of force 9 from the east, barometer 29.90, was experienced during the early morning by the American steamer *San Marcos*. The gale of the 18th appeared to be due only to locally squally conditions; that of the 28th, to a probable cyclonic disturbance, central, according to the Mexican Meteorological Service, to the southward.

Several tropical lows appeared in the Far East, but we have no present information that they were severe.